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COPYRIGHT PROTECTION FOR COMPUTER SOFTWARE: DOES HONG KONG MEET INTERNATIONAL STANDARDS?



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Introduction

If Ada¹ were alive today, she would be surprised to find the impact her work has left on the course of mankind. While no one could refute the possibility that she might have foreseen her efforts as paving the way to a technological revolution, few would go so far as to suggest that she could have also foreseen the severe challenges to the law posed by the technology as a result.

Indeed, it has taken the legal world more than a quarter of a century to come to grips with the computing technology. Although it did not take long before computer software was universally recognised as protectable intellectual property, quite a long period of legal development elapsed before copyright was internationally accepted as the most appropriate property right for computer software.

The first computer program was filed for copyright registration with the United States Register of Copyrights in November 1961² but legislation offering copyright protection to computer programs did not appear in any country until more than a decade later. In 1970, the United Nations requested the International Bureau of the World Intellectual Property Organisation (WIPO) to prepare a study on the appropriate form of legal protection for computer software. It took WIPO more than six years before it made its recommendations which were embodied in its Model Provisions on the Protection of Computer Software ('Model Provisions') published in 1978.³ To a large extent, the Model Provisions constitute a system *sui generis*⁴ although the commentary to the Provisions stressed that they could be implemented by a copyright law.

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¹ Lady Augusta Ada Lovelace, daughter of the English poet Lord Byron. Because of her work with Charles Babbage on an 'analytical machine' in England during the first half of the 19th century, she is widely regarded as the first computer programmer. The programming language Ada developed by the US Defence Department during the 1980s was named after her.

² Cary, 'Copyright Registration and Computer Programs' (1964) 11 *Journal of the Copyright Society of the USA* (No 6) 362.

³ [1978] *Copyright* 12-13.

⁴ The Model Provisions do not expressly regard computer software as literary works. Under the Provisions, the use of software is a restricted act and the term of protection is not more than 25 years. For a summary of the Provisions, see Appendix 1, Tables 1-9.

It was in 1972 that copyright protection for computer programs was first expressly provided at the national level.⁵ Since then the applicability of copyright to computer programs was investigated in various countries such as Hungary, Japan, the United Kingdom, the United States, and the Federal Republic of Germany. These investigations, the last of which ended around the mid-1980s, also concluded that copyright was the most suitable means of protecting computer software.⁶

In 1985, on the basis of replies to a WIPO questionnaire and the position papers of some member states, a conference was jointly held by UNESCO and WIPO to re-examine the question of a sui generis protection system for computer programs. At this important conference the great majority of the government delegations rejected such a system and reaffirmed that copyright was the most suitable means by which to protect software. The stage was then set for other countries to follow suit. Copyright soon afterwards became the internationally accepted primary means of software protection, and remains so today.⁷

To appreciate the legal issues that had been raised in this period, a brief look at the developments in the US and the European Community should perhaps provide the best illustrations.

Developments in the United States

On 12 December 1980, the US Congress passed an Act⁸ making two amendments to the Copyright Act of 1976.⁹ First, s 101 of the 1976 Act was extended to include a definition of 'computer program,' namely, 'a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.' Second, a new s 117 was inserted allowing the owner of a copy of a computer program to make an adaptation or another copy of that program, provided that the new copy or adaptation is created as an essential step in the utilisation of the computer program in conjunction with a machine, or for archival purposes only. By enacting the amending Act, the US Congress established unambiguously that computer programs enjoy full copyright protection as literary works in the US.

Since 1981, the US courts have handed down a large number of decisions clarifying the law. Issues that are well settled include: copyrightability of audio-

⁵ In the Philippines: [1974] Copyright 294-300.

⁶ But note the long debate in Japan between the Cultural Affairs Agency (CAA) of the Ministry of Education and the Ministry of International Trade and Industry (MITI): CAA advocated copyright for software protection but MITI argued for a sui generis scheme providing a short period of protection and compulsory licensing. Not surprisingly, the MITI proposal came under vigorous attack from the US and the EEC. The debate was finally resolved by the Japanese Diet in 1985 adopting the copyright solution: Karjala, 'Protection of Computer Programs under Japanese Copyright Law' (1986) 4 EIPR 105.

⁷ Doubts still linger though as to whether copyright is the best answer. See for instance Zheng and Pendleton, *Copyright Law in China* (1992), p 195 et seq.

⁸ Public Law 96-517, 94 Stat 3028-9.

⁹ Title, 17 USC.

visual displays of video-games,¹⁰ fixation requirement in relation to programs in read-only-memories (ROMs),¹¹ copyrightability of object codes,¹² and copyrightability of operating systems.¹³ In more recent decisions, the US courts have further expanded the law.

In *Lotus Development Corp v Paperback Software International*,¹⁴ the court examined the copyrightability of a program's user-interface. The court doubted the usefulness of the 'look and feel' concept in determining both the copyrightability of non-literal works and the question of 'substantial similarity' between such works. Instead the court formulated a new test for copyrightability of a non-literal work. First, the decision-maker must choose some conception or definition of 'idea' between the most abstract and the most specific of all possible conceptions. Second, the decision-maker must identify elements of expression in the work not essential to every expression of the idea. Third, having identified such elements, the decision-maker must decide whether they form a substantial part (judged both quantitatively and qualitatively) of the work — if the answer is yes, the work is copyrightable.

In *Feist Publications v Rural Telephone Services Co*,¹⁵ the Supreme Court gave one of its most important decisions in the history of US copyright law. Expounding on the meaning of 'originality,' the court firmly rejected the 'sweat of the brow' doctrine¹⁶ and ruled that white pages of the defendant's telephone directory could not attract copyright as the defendant had not selected, co-ordinated, or arranged the uncopyrightable facts in an original way. For a compilation to be original, the selection, co-ordination, or arrangement must possess a minimal degree of creativity which goes beyond mere 'sweat of the brow.' Moreover, even when a factual compilation is eligible for copyright, the copyright will not extend to the facts themselves. A subsequent compiler remains free to copy the facts in preparing a competing work, so long as the competing work does not feature the same (or substantially the same) selection, co-ordination, or arrangement. While its full impact is yet to be discovered, this important decision has already found repercussions in the European Community.¹⁷

In *Computer Associates International v Altai*,¹⁸ the Court of Appeals, Second Circuit, re-examined the question of non-literal copyright infringement in

¹⁰ *Stern Electronics v Harold Kaufman*, 669 F 2d 852 (2nd Cir 1982); *Midway Manufacturing v Strohon*, 564 F Supp 741 (ND Ill 1983). Note that audio-visual works are expressly protected in the US under s 102(a)(6) of the 1976 Act.

¹¹ *Williams Electronics v Artic International*, 685 F 2d 870 (3rd Cir 1982).

¹² *Apple Computer v Franklin Computer Corp*, 714 F 2d 1240 (3rd Cir 1983).

¹³ *Ibid.*; *GCA Corp v Chance*, 217 USPQ 718 (ND Cal 1982).

¹⁴ 740 F Supp 37 (DC Mass 1990).

¹⁵ 111 SCt 1282 (1991).

¹⁶ Which is essentially the same as the English doctrine of 'skill and labour' for copyright protection: *Ladbroke (Football) Ltd v William Hill* [1964] 1 All ER 465.

¹⁷ As reflected in the proposed EC Database Directive (discussed below).

¹⁸ 3 CCH Computer Cases 46,666 (2nd Cir 22 June 1992).

relation to computer programs. The court strongly disapproved of the test in *Whelan Associates v Jaslow Dental Laboratory*¹⁹ which was based upon the notion that the purpose or function of a utilitarian work was the work's idea (not protectable) and everything that was not necessary to that purpose or function was part of an expression of that idea (protectable). The test fails to recognise that any given work may consist of a mixture of ideas and expressions and merely compares the 'structure, sequence and organization' of the plaintiff's program with that of the defendant's. In rejecting *Whelan*, the court laid down a new three-step test. First, the court should break down the plaintiff's program into its constituent structural parts at different levels of abstraction. Second, the court should separate the protectable expressions from the non-protectable material (which includes ideas and elements dictated by external factors or taken from the public domain) at each level of abstraction. Third, the court should determine whether the defendant has copied any of the protectable expressions, and if so, assess the copied portion's relative importance with respect to the plaintiff's program.

Finally, the issue of 'reverse-engineering'²⁰ of computer programs came before the court in *Sega Enterprises v Accolade*.²¹ There the defendant reverse-engineered the plaintiff's video-game programs in order to discover the requirements for compatibility with the plaintiff's video-game console. It did so by making intermediate copies of the plaintiff's object code and disassembling²² it. The court held that the intermediate copying of the object code was an infringing act. On the other hand, since the disassembly of the object code was a necessary step in examining the unprotected ideas and functional concepts embodied in the code, it was held to be a fair use within s 107 of the 1976 Act.

Developments in the European Community

By June 1989, member states of the EC had all provided copyright protection for computer programs by statute.²³ Compared with the US, the software industry in the EC has given rise to much less copyright litigation. The EC's main concern is the harmonisation of software protection within the Community.

In May 1991, the EC Council adopted a Directive on the Legal Protection of Computer Programmes ('Software Directive'). The Directive expressly requires member states to protect computer programs by copyright as literary

¹⁹ 797 F 2d 1222 (3rd Cir 1986).

²⁰ The process of analysing the ideas and concepts contained in a work, and using the result to produce another work with the same functionalities.

²¹ 24 USPQ 2d 1561 (1992).

²² Conversion of object code into source code or into a version which is comprehensible to human beings. Note that the term 'disassembly' is the same as 'decompilation' in Art 6 of the EC Software Directive (discussed below).

²³ The last member state which did so was Denmark.

works.²⁴ The protection applies only to the expression of a computer program and not to the underlying ideas and principles.²⁵ To qualify for protection, the sole requirement is that the computer program is original in the sense that it is 'the author's own intellectual creation.'²⁶ Under the Directive, the rightholder of a program is given exclusive rights to certain acts²⁷ to which there are some exceptions.²⁸

Perhaps the most important provision in the Directive is Article 6, which deals with decompilation in the context of reverse-engineering of computer programs. Under this Article, provided that certain conditions are met, no authorisation of the rightholder is required where reproduction of a code and translation of its form are 'indispensable to obtain the information necessary to achieve the interoperability'²⁹ of an independently created computer program with other programs.'

Under Article 10.1, member states of the EC were required to comply with the Directive before 1 January 1993.

In view of the rapid growth of European interest in the global database market³⁰ and as a response to the US decision in *Feist*,³¹ the EC Commission has proposed another Directive which will be of equal importance if adopted — the Directive on the Legal Protection of Databases ('Database Directive'). The proposed Directive accords databases³² copyright protection in all member states as 'collections' within the meaning of Article 2(5) of the Berne Convention³³ and with the same term as that for literary works.³⁴ As with the Software Directive, the sole requirement for copyright protection is originality in the sense that the selection or arrangement of material in the database constitutes 'the author's own intellectual creation.'³⁵ The protection does not extend to the contents of the database and is without prejudice to any rights subsisting in those contents.³⁶

Besides giving the author exclusive rights to certain acts,³⁷ the most distinctive feature of the proposed Directive is the introduction of a new sui generis 'right to prevent unfair extraction.' Article 2.5 defines it to be 'a right

²⁴ Art 1.1.

²⁵ Art 1.2.

²⁶ Art 1.3.

²⁷ Art 4.

²⁸ Art 5.

²⁹ That is, the ability to enable different computer programmes to work together.

³⁰ The European share of the world database market grew from 1.7 billion ECUs in 1988 to 2.9 billion ECUs in 1991: Barrett and Coulter, 'Proposed Council Directive on the Legal Protection of Databases' (1992) 8 Computer Law and Practice (No 2) 34.

³¹ Note 15 above.

³² 'Database' is defined in Art 1.1.

³³ Art 2.1.

³⁴ Art 9.1.

³⁵ Art 2.3.

³⁶ Art 2.4.

³⁷ Art 5. Exceptions to these acts are listed in Arts 6 and 7.

for the maker of a database to prevent the unauthorized extraction or re-utilization, from that database, of its contents, in whole or in substantial part, for commercial purposes.' The right applies irrespective of the eligibility of the database for copyright protection but does not apply to those contents already protected by copyright. In essence, this new right is the EC's attempt to resolve a tension between two propositions which the US Supreme Court in *Feist* could not resolve: first, that copyright in a database ought not extend to its underlying facts; the other, that the fruit of a compiler's labour ought not be taken by others without compensation. However, the new right as proposed is short-lived and lasts only ten years from the date when the database is first lawfully made available to the public.³⁸

Connected with the new right is a compulsory licensing scheme: where a database is made publicly available either by a public body under a general duty or in circumstances such that the materials contained therein cannot be independently created, the right to extract and re-utilise its contents, in whole or in substantial part, for commercial purposes will be licensed on fair and non-discriminatory terms.³⁹ The introduction of such a licensing scheme in the proposal is a result of the EC Court of First Instance decision in the *Magill* case⁴⁰ — an attempt to resolve the conflict between the exercise of copyright and the abuse of a dominant position contrary to Article 86 of the Treaty of Rome.

International copyright conventions

The foregoing is a very brief review of the developments of copyright protection for computer software, particularly in the US and the EC. Nothing has been said, however, about the two important copyright conventions — the Berne Convention and the Universal Copyright Convention (UCC). The reason is simple: although both conventions give copyright protection to literary, scientific, and artistic works, computer programs are not specifically referred to in either convention. Until proposals for a Berne Protocol covering copyright protection for computer programs and databases⁴¹ are adopted, doubts remain as to the applicability of the conventions in their present form to computer software.

I shall next examine copyright protection for computer software in Hong Kong. In view of growing international concern in this area of law, I shall assess Hong Kong's legal protection for computer software in the international context. As the WIPO's Model Provisions, US law, and EC Directives

³⁸ Art 9.3.

³⁹ Arts 8.1 and 8.2.

⁴⁰ Case T-69/89 *Radio Telefis Eireann v Commission of the EC* [1991] CMLR 586; Case T-70/89 *BBC v Commission of the EC* [1991] CMLR 669; and Case T-76/89 *Independent Television Publications Ltd v Commission of the EC* [1991] CMLR 745. These cases are collectively known as the *Magill* case.

⁴¹ [1992] Copyright 32–6.

represent, to a large extent, the international trend in this area of law, I shall use them as yardsticks in my assessment. To facilitate this task, I have summarised, at the risk of over-simplification, the more important elements of these three sets of laws (hereafter 'model laws') as shown in Tables 1–9 in Appendix 1.

Copyright protection for computer software in Hong Kong

Hong Kong's law on copyright stems from the UK Copyright Act 1956 which was extended to Hong Kong by the Copyright (Hong Kong) Orders 1972 to 1990,⁴² with effect from 12 December 1972. Since the 1956 Act is not explicit as to whether computer programs attract copyright, the UK Parliament passed in 1985 the Copyright (Computer Software) Amendment Act as an interim measure to clarify the position pending a comprehensive review of the 1956 Act. The 1985 Act was extended to Hong Kong effective from 1 February 1988 by the Copyright (Computer Software) (Extension to Territories) Order 1987.⁴³ In 1988, the UK Parliament enacted the Copyright, Designs and Patents Act, but the 1988 Act has not been extended to Hong Kong.

In September 1987, influenced by the copyright law reform then going on in the UK, the Hong Kong Law Reform Commission was asked by the government to review the copyright law of Hong Kong and to make recommendations for a Hong Kong ordinance dealing comprehensively with the law of copyright. The Commission appointed a Copyright Sub-committee in December 1987 to undertake that task. At the end of 1990, the Sub-committee published a consultative document entitled 'Reform of the Law Relating to Copyright' (hereafter 'consultative document') of which a chapter is devoted to 'computers and related technology'.⁴⁴ But as at the time of writing,⁴⁵ the final report of the Law Reform Commission has not been published, nor has any new ordinance been proposed.

Thus the copyright protection for computer software in Hong Kong is still governed by the 1956 and 1985 Acts. Rather surprisingly, to date, apart from cases concerning remedies, there has only been one pre-1985 interlocutory case reported in Hong Kong,⁴⁶ and none at all after the 1985 Act, which deals with the substantive law of software copyright. Hence virtually all the binding precedents in this area are from the UK.

⁴² SI No 1724 of 1972, SI No 910 of 1979 and SI No 588 of 1990.

⁴³ SI No 2200 of 1987.

⁴⁴ Ch 5.

⁴⁵ The law is stated as at 8 December 1993.

⁴⁶ *Atari v Video Technology Ltd* (1982) CA, Civ App Nos 117 and 118 of 1982. The lack of Hong Kong case law in this respect reflects the reality in Hong Kong: the software industry is relatively under-developed and copyright infringements are almost invariably by slavish copying alone.

Copyrightability of computer software

Object codes

Section 1(1) of the 1985 Act states that computer programs are protected as literary works under the 1956 Act. The term 'computer program' is not defined in the 1985 Act. Consequently there are doubts as to whether object codes are computer programs attracting copyright under the 1985 Act. Unlike source codes which are comprehensible to human beings, object codes are machine-readable only — a fact which has been the main ground for objection to their being afforded literary copyright. The question whether object codes attract literary copyright has never reached a full trial in the UK, nor has it ever come before a Hong Kong court. In a pre-1985 UK interlocutory decision which addressed the question,⁴⁷ Goulding J held that the object code derived from a source program was to be regarded as either a reproduction or an adaptation of the program, instead of ruling that copyright subsists in object codes per se.

Although s 1(2) of the 1985 Act — which provides that 'a version of the program in which it is converted into or out of a computer language or code, or into a different language or code, is an adaptation of the program' — seems to contemplate different versions of a program in different languages or codes, that section is concerned with the definition of 'adaptation' of a computer program, rather than 'computer program' itself. Nevertheless, it is worth noting that even if object codes are not directly protected as computer programs, they are still protected as adaptations of the corresponding source codes by virtue of s 2(5)(g) of the 1956 Act. This is also the approach of the UK 1988 Act⁴⁸ as amended by the UK Copyright (Computer Programs) Regulations 1992.

Preparatory material

The 1985 Act is silent as to whether preparatory material, such as design specifications and flow charts, are included in the definition of a computer program. But such material, if expressed in writing, is protected in its own right as literary works under the 1956 Act. Arguably, flow charts or diagrammatic representations also attract literary copyright as they are forms of notation, which are within the definition of 'writing' by virtue of s 48(1) of the 1956 Act.

This is in line with the model laws.⁴⁹

Concepts

Both the 1985 and the 1956 Acts contain no provisions pertaining to the idea/expression dichotomy. In practice, the UK courts have often insisted that copyright law only protects the expression of an idea and not the idea itself.⁵⁰

⁴⁷ *Sega Enterprises Ltd v Richards* [1983] FSR 73.

⁴⁸ ss 21(3)(ab), (4).

⁴⁹ Appendix 1, Table 1.

The boundary between an idea and its expression is not always easy to draw.⁵¹ Nonetheless there is at least one instance where the UK court assumed the existence of a doctrine to the effect that where an idea can be expressed in only one way, that expression will not be protected.⁵² (This is known as the 'merger doctrine' in the US.⁵³) All these will likely be followed by the Hong Kong courts.

Related to the idea/expression dichotomy is the question of copyrightability of an 'algorithm,' which term is best defined as 'a series of instructions or procedural steps for the solution of a specific problem, existing independently from, and irrespective of, the language or code in which they will eventually need to be expressed.'⁵⁴ Computer scientists generally regard algorithms as 'ideas.' This is so because they use the term 'algorithm' in contradistinction to the program that implements the algorithm. But in strict legal terms an algorithm may not always be defined as the idea itself. An algorithm is an 'idea' as long as it remains a general idea or basic concept. Once the algorithm has acquired sufficient details and complexity and is expressed in a particular form (such as a flowchart or pseudo-code) it may cease to be an idea and may attract copyright in that form of expression.⁵⁵ If so, that copyright may be infringed by reproducing the algorithm in that form. Furthermore, analogous to the case of making an adaptation, there may be copyright infringement even if the algorithm is reproduced in a different form (as, for instance, converting a flowchart into a pseudo-code or vice versa).

It has been suggested that an algorithm may attract literary copyright 'on the ground that it is, or is closely analogous to, a compilation or table.'⁵⁶ It is submitted that this view is helpful only if the algorithm is built upon pre-existing algorithms—thus a 'compilation'—and is of doubtful value where the algorithm is innovative or constructed entirely from scratch. The key to the question as to whether an algorithm attracts copyright lies not in finding a precise legal definition of 'algorithm' but in determining just where the idea ends and the exercise of expressing the idea begins. As always, this can only be decided on the facts of each case.

⁵⁰ See, eg, *Ladbroke (Football) Ltd v William Hill (Football) Ltd* [1964] 1 WLR 273; *LB (Plastics) Ltd v Swish Products Ltd* [1979] RPC 551.

⁵¹ For a good illustration, see the US cases: *Lotus* (note 14 above); *Computer Associates* (note 18 above).

⁵² *TIPS Ltd v Daman Ltd* [1992] FSR 171.

⁵³ *Landsberg v Scrabble Crossword Game Players*, 736 F 2d 485 (9th Cir 1984).

⁵⁴ Laddie, Prescott, and Vitoria, *The Modern Law of Copyright* (1980), para 2.142.

⁵⁵ Another way of arriving at the same conclusion but keeping algorithms within the realm of 'ideas' can be achieved by adopting Pritchard J's reasoning in the New Zealand Supreme Court decision of *Plix Products v Frank M Winstone* [1986] FSR 63, 92–4. There the learned Judge opined that 'ideas' were of two kinds: first, the general idea or basic concept of a work; and second, those 'ideas which were applied in the exercise of giving expression to basic concepts,' furnishing the latter with details of form and shape. While the first kind remained unprotectable by copyright, the second kind might be protectable. Based on this classification, one may argue that if an algorithm is sufficiently detailed and complex, it will not be an idea of the first kind but rather of the second kind, which is copyrightable.

⁵⁶ Laddie, Prescott, and Vitoria (note 54 above).

In summary, for software protection, it is fair to say that copyright law in Hong Kong protects only a program (expression of an idea) and not its underlying concept (the idea itself), and will offer very limited or even no protection at all if the latter dictates the way in which the program is to be written. In this respect, Hong Kong law is the same as the model laws.⁵⁷

Screen displays

Unlike the US, the UK has no general statutory provision protecting audio-visual works by copyright and a program's screen display has not been the subject of any dispute.⁵⁸ Under the 1956 Act it appears that if a program's screen display consists mainly of drawings it may be regarded as an artistic work within s 3(1) and attract independent copyright. This is because, unlike literary works, there is no requirement of fixation for artistic works under the Act.⁵⁹

On the other hand, where the content of a display is primarily literary, it is doubtful if it will attract independent copyright. In this case the content will almost certainly be embedded in the underlying program itself. It is difficult to see how the display, separate from the underlying program, has been reduced to some material form within s 49(4) of the Act.

Where a screen display consists of a sequence of moving images, as in the attract mode of a video-game, it may be argued that the display is a cinematograph film within s 13(10) of the Act. The difficulty in this connection is that the visual images must be 'recorded,' which is not itself defined in the Act.

Copyright protection for screen displays was unfortunately not considered by the Copyright Sub-committee. In view of the importance of a screen display as a user-interface — which almost invariably determines the fate of a product in the market — the question whether a program's screen display should be protected by copyright in Hong Kong deserves a full discussion. It is submitted that the answer should be in the affirmative.

Criteria for protection

Originality

Under ss 2(1) and 2(2) of the 1956 Act, originality is expressly required for copyright to subsist in a literary work, whether published or unpublished. Although the 1956 Act provides no definition of originality, the UK courts have made it clear that for a work to be original, it must have originated from the author (that is, not copied from another work)⁶⁰ and have involved the author's skill and labour.⁶¹ Where a work makes use of pre-existing material, the

⁵⁷ See Appendix 1, Table 1.

⁵⁸ For the US cases in this area, see, eg, *Lotus* (note 14 above); *Apple Computer v Microsoft Corp and Hewlett-Packard*, 3CCH Computer Cases 46,676 (ND Cal 7 August 1992).

⁵⁹ Note that s 49(4) which relates to fixation applies only to literary, dramatic, and musical works.

⁶⁰ *University of London Press v University Tutorial Press Ltd* [1916] 2 Ch 601.

⁶¹ *Ladbroke* (note 16 above).

skill and labour expended must be sufficient to impart to the work some quality or character which the pre-existing material did not possess.⁶² Often the line between what is sufficient skill and labour and what is not for the purpose of obtaining copyright is difficult to draw.⁶³ The question is essentially one of fact and degree in each case.

On this basis, one may draw two conclusions on the originality standard for software protection in Hong Kong:

(1) It is necessary only to show that a program is the author's own work. The program does not have to be novel.

(2) A program may still be original even if it contains a pre-existing code, or is a modified version of another program, provided that it encompasses substantial alteration or improvement (judged qualitatively) over the pre-existing material.

Conclusion (2) is especially important in view of the recent software development methodology known as 'object-oriented programming' whereby a program is not developed from scratch but is built upon pre-existing modules (called 'objects') designed to perform specific tasks.

On the whole, Hong Kong's standard of originality is commensurable with those of the model laws.⁶⁴

Fixation

Although not expressly worded, ss 2(1) and 2(2) of the 1956 Act in effect state that copyright subsists in a literary work only when it is made or published. Section 49(4) of the Act provides that a literary work was made at such time as 'it was first reduced to writing or some other material form.' The combined effect of these provisions is that a computer program attracts copyright only when it has taken some material form, of which writing and publication are two examples.

Section 2 of the 1985 Act extends references to the reduction of any work to a material form to include references to the storing of that work 'in a computer.' The phrase 'in a computer' clearly covers a computer's internal storage such as its ROMs, hard disks, and internal memory. While it is possible to argue that external media such as floppy disks, magnetic tapes, or CD-ROMs are not 'in a computer,' programs stored in such media are likely to be treated as having some material form.⁶⁵

Among the model laws, only the US law has an express requirement of fixation for copyright protection.⁶⁶ Though phrased differently, the fixation requirement in the US⁶⁷ is essentially the same as that in Hong Kong.

⁶² *Interlego v Tyco Industries* [1988] RPC 343.

⁶³ See, eg, *Libraco v Shaw* (1913) 30 TLR 22; *Ladbroke* (note 16 above); *Byrne v Statist Co* [1914] 1 KB 622; *Cramp v Smythson* [1944] AC 329.

⁶⁴ See Appendix 1, Table 2.

⁶⁵ Note that s 2 of the 1985 Act defines 'material form' inclusively rather than exhaustively.

⁶⁶ US Copyright Act of 1976, s 102.

Qualification

Under the 1956 Act, an unpublished literary work is protected if the author was a qualified person at the time when the work was made.⁶⁸ A qualified person is defined as either (1) a national or resident of a country to which the Act extends, or (2) a company incorporated in a country to which the Act extends.⁶⁹ In the case of a published literary work, copyright subsists in the work if it was first published in a country to which the Act extends, or the author was a qualified person at the time of its first publication.⁷⁰

As Hong Kong is not an independent country, it is not a direct party to any of the international copyright conventions. But by virtue of the Copyright (International Conventions) Orders 1979 to 1989,⁷¹ effective from 24 January 1980, works by nationals or residents of, or first published in, member countries of the Berne Convention or the UCC also enjoy copyright protection in Hong Kong under the 1956 Act.

Except for unpublished software, the qualification requirement in Hong Kong is similar to that in the US.⁷²

Term of protection

With a few exceptions, the term of copyright protection in Hong Kong for a literary work is the author's life plus fifty years.⁷³ This term of protection applies to computer software and is in line with the terms under the US and the EC laws. The term will also satisfy the Berne requirement⁷⁴ if the Convention regards computer programs as literary works.

There are concerns that the term is too long given that computer programs often become out-dated in a much shorter time. But as the Copyright Subcommittee have rightly stated, since copyright does not protect ideas but their expression, the lengthy term should not stifle software development.⁷⁵

In keeping the term, Hong Kong is on a par with the US and the EC.

Ownership

Under the 1956 Act, copyright in a literary work belongs initially to its author.⁷⁶ There is one major exception⁷⁷ to this rule: where the work is made in the course of the author's employment and within his duties, copyright will

⁶⁷ Ibid, s 101.

⁶⁸ s 2(1).

⁶⁹ s 1(5).

⁷⁰ s 2(2).

⁷¹ SI No 1715 of 1979, SI No 1723 of 1980 and LN96 of 1989.

⁷² See Appendix 1, Table 2.

⁷³ Copyright Act 1956, s 2(3).

⁷⁴ Berne Convention, Art 7(1).

⁷⁵ Consultative document, para 5.26.

⁷⁶ s 4(1).

⁷⁷ Another exception exists under s 4(2) concerning works of journalists. But it is of little relevance to software protection.

vest in the author's employer⁷⁸ subject to any contract to the contrary.⁷⁹ All these provisions accord with the model laws.⁸⁰

The 1956 Act contains no special provision on the ownership of copyright in commissioned software. Hence the commissioned party, who is the author, is deemed to be the copyright owner. In practice, copyright ownership of commissioned software is likely to be governed by contract.

Similarly the Act is silent on the ownership of 'computer-generated software,' that is, software generated by computer in circumstances where there is no human author. It then follows that even if copyright subsists in these works, it will not be actionable as there is no natural or legal person to enforce the right. The Copyright Sub-committee recognise the problem but do not recommend followings 9(3) of the UK 1988 Act,⁸¹ which states that the author of a computer-generated work is 'the person by whom the arrangements necessary for the creation of the work are undertaken.' The Sub-committee's prudence here should be applauded as the UK provision is bound to give rise to difficulties when put into practice.

Computer-generated works raise at least three questions:

(1) How does one ascertain circumstances where a work has 'no human authors'?

(2) If a work has no human authors, on what grounds should the law vest copyright in one person and not in another?

(3) More fundamentally, if a work has no human authors, why should copyright subsist at all?

These are not simple questions. In fact they are still unsettled issues in international law.⁸² In view of this, perhaps one should not be too critical of Hong Kong's silence on this matter, as it is merely an example of an almost universal silence.⁸³

Restricted acts

Section 2(5) of the 1956 Act lists all the acts restricted by copyright in a literary work. If performed without authorisation of the copyright owner, such acts constitute primary infringements of copyright for which ignorance is no defence.

⁷⁸ s 4(4).

⁷⁹ s 4(5).

⁸⁰ Appendix 1, Table 4.

⁸¹ Consultative document, para 5.48.

⁸² Gervais, 'The Protection Under International Copyright Law of Works Created with or by Computers' (1991) 22 IIC 628-60.

⁸³ See Appendix 1, Table 4. But note the proposal on 'computer-produced works' in the ongoing discussions on a Berne Protocol: [1992] Copyright 37-8.

Reproduction (1): literal and non-literal copying

Reproducing a literary work in any material form is a restricted act under s 2(5)(a) of the 1956 Act, and this includes reproducing a substantial part of the work.⁸⁴ The UK case law has established clearly that reproduction involves copying⁸⁵ and the test for substantiality is qualitative rather than quantitative.⁸⁶

The question of infringement by copying is closely linked with the idea/expression distinction — copying a program is an infringement of copyright, whereas copying the underlying concept is not. Although there is no case directly on this point, it seems sensible to suggest that where hardware constraints severely restrict the ways in which a program can be written, a UK court will limit the scope of protection for the program.⁸⁷ In the US, this proposition is a corollary of the merger doctrine and was applied in *NEC v Intel Corp*⁸⁸ where it was held that hardware constraints on microcode in a chip meant that the code could only be protected against virtually identical copying.

On the other hand, it is submitted that software constraints are unlikely to be as severe as to warrant a similar proposition. The difference lies with the computing technology rather than the law: hardware constraints can restrict the content of a program's machine code, and it is difficult to find two different ways of writing a program which translate into the same machine code, whereas software constraints often only restrict the format of a program's result, and it is always possible to write a program in two or more different ways which comply with this restriction.

In contrast to literal copying, non-literal copying of programs has given rise to difficult questions of law. The issue has been considered by the UK courts in a number of interlocutory cases⁸⁹ which in the main relied upon the US decision of *Whelan*⁹⁰ as persuasive authority. It was only recently that the issue reached a full trial in *John Richardson Computers Ltd v Flanders and Chemtec Ltd*⁹¹ and obtained a new ruling. Delivering his judgment, Ferris J approved and applied the three-step test laid down by the US court in *Computer Associates*⁹² which, as mentioned earlier, rejects the once prevalent *Whelan* test. Although the new test was applied with some modifications, the decision signifies a major departure from the previous law.

⁸⁴ Copyright Act 1956, s 49(1).

⁸⁵ *Ladbroke* (note 16 above).

⁸⁶ *Ibid.*

⁸⁷ For the basis of this proposition in the UK, see *TIPS* (note 52 above).

⁸⁸ (1989) 10 USPQ 1177

⁸⁹ See, eg, *MS Associates Ltd v Power* [1988] FSR 242; *Computer Aided Systems (UK) Ltd v Bolwell* (April 1990) IPD 15.

⁹⁰ Note 19 above.

⁹¹ Chancery Division, 19 February 1993 (unreported). For comments on the case, see Arnold in (1993) 7 EIPR 250–3.

⁹² Note 18 above.

How much this will affect the Hong Kong law remains to be seen. But since English precedents are generally followed in Hong Kong, and may be binding, one should expect that the three-step test in *Computer Associates* will find its echo in Hong Kong.

Reproduction (2): loading and making of back-up copies

Section 2 of the 1985 Act provides that references to the reproduction of a work in a material form include references to the storing of that work in a computer. Much as this section has settled doubts raised under the 1956 Act, it has at least two undesirable effects.

First, it renders the loading of a program into a computer's hard disk an infringement of copyright under s 2(5)(a) of the 1956 Act, unless it is authorised by the copyright owner. This is so even when it is performed by the purchaser of a copy of the program and despite it normally being the first thing he does after a purchase.

Second, the making of a back-up copy also constitutes a copyright infringement under s 2(5)(a) of the 1956 Act if done without authorisation.

Although these problems can be avoided by granting the necessary rights to the purchaser in a contract of sale, such a contractual arrangement may be inappropriate for mass market software where the software publisher and the purchaser are not operating on a one-to-one basis. Moreover, even when a purchaser has his rights guaranteed by contract, the rights may not pass when he re-sells his copy to a third party.

There is however a strong argument that a purchaser of a copy of a program will always have the implied right to load the program and to make a back-up copy in light of the House of Lords decision in *British Leyland Motor Corp v Armstrong Patents Co.*⁹³ Applying the principle of 'non-derogation from grant' as their Lordships did in that case, one may say that a purchaser, in acquiring a copy of a program, acquires also the inherent right to perform operations necessary for using the program. Furthermore, the purchaser cannot be deprived of such right by the copyright owner. But two questions remain in this context:

(1) Is loading of a program into a hard disk (not main memory) 'necessary' for using the program?

(2) Similarly, is making of a back-up copy 'necessary' for using a programme?

With regard to question (1), the answer is in the negative since a program can always be run from a floppy disk instead of the hard disk. As to question (2), one may also answer it in the negative, especially where the software publisher has agreed to provide replacement for a damaged copy at no or minimal cost.

⁹³ [1986] FSR 221.

The Copyright Sub-committee recommend a provision similar to s 39 of the Singapore Copyright Act 1987 which expressly permits the owner of a copy of a programme to make another copy if it is an essential step in the utilisation of the programme with a machine, and to make a back-up copy solely for the purpose of being used in the event that the original copy is lost, destroyed, or rendered unusable.⁹⁴ Although the meaning of 'an essential step' is not entirely clear, the recommended provision is an improvement over the existing law.

Adaptation

Making an adaptation of a literary work is a restricted act under s 2(5)(f) of the 1956 Act. By virtue of s 1(2) of the 1985 Act, the restricted act includes translating a computer program from source code to object code or vice versa, or into a different code or computer language.

These provisions make no allowance for translations which are incidental in the course of running a program. Consequently they have the undesirable effect of prohibiting the running of a program for which translation from one version of code to another is an indispensable part of the program's execution.⁹⁵ The result is absurd when it is the purchaser of a copy of the program who is being prevented from using the program. Although one may suggest that here lies a strong ground for applying the doctrine in *British Leyland*⁹⁶ rendering the purchaser the right to use the program in spite of the restrictive provisions, the question has not come before any court in Hong Kong or the UK.

In recommending s 39 of the Singapore Copyright Act 1987, the Copyright Sub-committee take the view that legislation should expressly permit adaptation by the owner of a copy of a program if it is an essential step in using the program.⁹⁷ This view merits support.

Use

Although the use per se of a program with a machine is not restricted under the 1956 Act, the 1985 Act in effect turns it into a restricted act in most cases. This is because running a program often incurs copying its object code into the computer's internal memory, thus reproducing the object code within s 2 of the 1985 Act. But as discussed earlier, in the case of an owner of a copy of a program, one may argue that the doctrine in *British Leyland*⁹⁸ should apply, giving the owner the inherent right to use the program notwithstanding s 2 of the 1985 Act. However, a preferred solution is to have a clear statutory provision allowing the owner to make a reproduction if it is necessary for using the program.

⁹⁴ Consultative document, para 5.39.

⁹⁵ For instance, a program written in an 'interpreted language.' Each execution of such a program involves translating the original code into some more easily executable code.

⁹⁶ Note 93 above.

⁹⁷ Consultative document, para 5.39.

⁹⁸ Note 93 above.

On the other hand, a related problem arises in connection with unauthorised use of programs in a computer network. With today's network technology, it is not uncommon that a single copy of a program suffices to serve simultaneously several users at different machines on a network. Once a copy of a program is resident in the internal memory of a specified machine on a network, any network user can run it without the need of making a local copy in his own machine. Such uses will not be caught by the 1985 Act as there are no reproductions involved.

Thus it is tempting to classify the use of a program with a machine as a restricted act which can only be performed by a lawful user. Indeed this is the position taken by the WIPO Model Provisions.⁹⁹ But unless one subscribes to a sui generis protection system for computer programs, one cannot ignore the fact that such a stance goes against a very fundamental principle of the copyright system, namely, that the use of a work should never constitute an infringement of copyright in the work.¹⁰⁰

In practice, unauthorised use of programs in a network environment will invariably breach the terms of a software licence. But if it is thought advisable to have a statutory solution to the problem, a better — and 'cleaner' — solution for Hong Kong is to extend the definition of 'publication' in s 49(2)(c) of the 1956 Act to include the act of 'enabling a program to be used with, or accessed from, more than one machine at the same time.' By prohibiting unauthorised placing of programs on a network, this solution indirectly prevents unauthorised use of programs in a network, while keeping the integrity of the copyright system intact.

Distribution and further rental

The 1956 Act gives the copyright owner of a literary work the exclusive right to publish the work.¹⁰¹ Publication takes place when reproductions of the work are issued to the public¹⁰² and it must be the first time that the work is made public.¹⁰³ Presumably the issue of copies includes the sale, loan, and rental of those copies.

Upon the first sale of a copy of a program, the rights of the copyright owner with respect to that copy are exhausted and there is nothing in the Act which prevents the purchaser of that copy from renting it out. This poses a serious threat to the economic interest of the copyright owner and is a drawback of the Act.

⁹⁹ s 5(vi).

¹⁰⁰ eg, *Brigid Foley Ltd v Elliott* [1982] RPC 433.

¹⁰¹ s 2(5)(b).

¹⁰² s 49(2)(c).

¹⁰³ *Infabrics Ltd v Jaytex Shirt Co Ltd* [1982] AC 1.

The Copyright Sub-committee (rightly) recommend that the further rental of a copy of a program be made a restricted act where possession of the copy passes.¹⁰⁴

Secondary infringements

Under the 1956 Act, a person infringes copyright in a literary work if he imports into Hong Kong (otherwise than for his private and domestic use) copies of the work knowing that if they were manufactured in Hong Kong they would be infringing copies.¹⁰⁵ Similarly, a person infringes copyright if he knowingly distributes for purposes of trade or otherwise deals with such copies by way of trade.¹⁰⁶ In all cases the alleged infringer must have actual knowledge of the infringing nature of the copies. This requirement is onerous to the plaintiff and differs significantly from those of the model laws which either require no knowledge (WIPO Model Provisions and US law) or allow constructive knowledge (EC Software Directive).¹⁰⁷

Where a person merely possesses infringing copies for commercial purposes without any dealing, it appears that he does not infringe copyright under the 1956 Act, even if he knows of the circumstances. Conversely, in relation to criminal proceedings, s 5 of the Copyright Ordinance¹⁰⁸ requires the accused to prove that he did not know or had no reason to believe that copies in his possession for the purposes of trade or business were infringing.

A curious result under the 1956 Act is that an exclusive licensee cannot prevent parallel importation into Hong Kong of goods manufactured abroad by the copyright owner. This is because an exclusive licensee does not own the copyright and so the goods would not constitute an infringement even if they were manufactured in Hong Kong. The only recourse for the exclusive licensee is to bring an action under contract against the copyright owner, but this is possible only if the latter has actually authorised the importation. On this issue of parallel imports the Copyright Sub-committee are divided in their views. The majority of the Sub-committee do not favour imposing any restriction on parallel importation on the ground that Hong Kong as a strong advocate of free trade should not erect barriers to goods that have been lawfully manufactured. There is also fear that 'copyright owners and their exclusive licensees [may] use the restrictions to exclude competitive imports and keep prices artificially high.'¹⁰⁹ With the best of intentions, the majority's view seems to leave the exclusive licensee in a vulnerable position.

¹⁰⁴ Consultative document, para 5.45.

¹⁰⁵ s 5(2).

¹⁰⁶ s 5(3), (4).

¹⁰⁷ See Appendix 1, Table 6.

¹⁰⁸ For a more detailed discussion of the ordinance, see below.

¹⁰⁹ Consultative document, paras 14.18 and 14.19.

Unlike the EC Software Directive,¹¹⁰ the 1956 Act contains no provision prohibiting the distribution of any article specifically designed to circumvent any technical means used in protecting a computer program against copying. The Copyright Sub-committee recommend a provision similar to s 296 of the UK 1988 Act creating new civil remedies against such articles.¹¹¹ It is uncertain whether such a provision will be effective given the inherent difficulty of determining the intended purpose for which an article was designed, and in light of the House of Lords decision in *CBS Songs v Amstrad*.¹¹² But it will certainly bring the level of software protection in Hong Kong in this respect up to that of the EC.¹¹³

Exceptions to copyright infringement

Since the 1956 Act does not specifically refer to computer programs, it contains very few exceptions to copyright infringement which are relevant to software protection. Apart from the uses in libraries¹¹⁴ and for education,¹¹⁵ the main exceptions to copyright infringement of literary works are given in s 6. Under this section, no fair dealing with a literary work will constitute a copyright infringement if it is for certain purposes which include research, private study, criticism, and review. Unlike the 'fair use' doctrine in the US¹¹⁶ which is a general defence, this 'fair dealing' principle only applies in relation to the specific purposes as listed in the section.

The 1956 Act contains no provisions permitting the loading of a program into a computer and the making of a back-up copy for limited purposes where the acts are performed by the owner of a copy of the program. As argued earlier, it is essential to have such provisions.

Similarly the Act is silent on the issue of disassembly (that is, decompilation) — an issue which has been the subject of a heated debate in the EC during the formulation of the Software Directive. While it may be possible for the Hong Kong courts to treat the disassembly of object codes for purposes of research, private study, criticism, or review as fair dealings within s 6, it is not at all clear whether disassembly for the purpose of achieving interoperability will always be so treated. An express provision similar to Article 6 of the EC Software Directive is therefore strongly recommended, in view of the global software trend towards interoperability and open systems.

¹¹⁰ Art 7.1(c).

¹¹¹ Consultative document, para 5.61.

¹¹² [1988] RPC 567. It was held that facilitating copying in breach of copyright does not amount to authorising the copying.

¹¹³ See Appendix 1, Table 6.

¹¹⁴ Copyright Act 1956, s 7.

¹¹⁵ *Ibid*, s 41.

¹¹⁶ US Copyright Act of 1976, s 107.

*Remedies**The 1956 Act*

Under the 1956 Act, a copyright owner can obtain relief in a copyright action by way of damages, injunction, accounts, or otherwise.¹¹⁷ Damages are compensatory but additional damages may be awarded having regard to the flagrancy of the infringement and any benefit accrued to the defendant.¹¹⁸

In respect of infringing copies or plates for making infringing copies, s 18 of the Act confers upon the copyright owner a right in conversion, that is, the same rights as though he were the owner of every such copy or plate and had been the owner thereof since it was made. The effect of this section is that where an infringing copy is not available (for instance because it has been sold), the damages will be assessed on the market value of the infringing copy without any deduction for the cost of manufacture or purchase by the defendant. This remedy is capable of generating a windfall for the plaintiff and has rightly been criticised as an 'oppressive device.'¹¹⁹

In most cases the plaintiff will seek interlocutory relief prior to a full trial. Remedies in this respect include search, seizure, and injunction.¹²⁰

The Act also establishes a wide range of summary offences prohibiting, inter alia, making for sale or hire, distributing, importing (otherwise than for private and domestic use) an article, knowing that it is an infringing copy.¹²¹ The difficulty with these sanctions is that they require the prosecution to prove the accused's actual knowledge beyond reasonable doubt, which in practice is often almost impossible.

A number of presumptions are available under the Act¹²² including presumptions as to (1) the subsistence of copyright, (2) the plaintiff's ownership of copyright, and (3) authorship and ownership where the relevant names have appeared on copies of a work. But presumptions (1) and (2) only apply when the defendant does not put those questions in issue, which in practice rarely happens.

The Copyright Ordinance

The most significant legislation in Hong Kong on copyright enforcement is the Copyright Ordinance introduced in 1973 when Hong Kong's trading reputation was tarnished as a result of widespread copyright piracy of sound recordings. Under s 5 of the ordinance, any person who for the purpose of trade or business possesses an infringing copy of a copyright work is guilty of an offence unless he can prove that he did not know or had no reason to believe

¹¹⁷ s 17(1).

¹¹⁸ s 17(3).

¹¹⁹ Consultative document, para 15.49(i).

¹²⁰ Often by way of an Anton Piller order or a Mareva injunction.

¹²¹ s 21.

¹²² s 20.

that the article infringed copyright. A similar offence exists in relation to the possession of a plate for making infringing copies. For both offences, regardless of whether a conviction is obtained, the court has wide powers to order destruction, delivery up, or any form of disposal of the infringing copies or plates.

Section 6 of the ordinance gives an authorised officer powers to enter and search any premises, or to stop and search any vehicle if he reasonably suspects that there are articles infringing copyright. In the process he may seize, remove, or detain any suspected material and evidence. Section 8 creates offences for wilful obstruction of investigating officers.

Section 9 provides presumptions in both civil and criminal proceedings: statements as to the subsistence and ownership of copyright contained in an affidavit will be presumed to be true until the contrary is proved. This important section overcomes the difficulties of calling witnesses when the author or the copyright owner is resident overseas, which is not an uncommon feature of copyright litigation in Hong Kong. However, much as it has contributed to Hong Kong's reputation in copyright enforcement, the section raises serious concerns as it in effect denies the alleged infringer the right to examine the deponent of the affidavit. As the Copyright Sub-committee have rightly observed, the section is even more objectionable as it applies to criminal proceedings, particularly in view of Article 14(3)(e) of the International Covenant on Civil and Political Rights, which states that an accused has the right to examine witnesses against him.¹²³ Now that Article 14(3)(e) has been incorporated in Article 11 of the Hong Kong Bill of Rights, it is indeed questionable if s 9 can be applied in criminal proceedings in Hong Kong.

In 1989 there were 129 recorded instances of seizure of infringing material valued at US\$4.5 million. Out of 117 prosecutions, 110 led to a conviction. In the first half of 1990, there were 88 instances of seizure of infringing goods valued at US\$4.2 million. Sixty-five prosecutions were instituted, leading to 43 convictions.¹²⁴ Thus aside from questions of principle, it is fair to say that in terms of copyright enforcement, both in theory and in practice, Hong Kong has one of the swiftest and most effective systems in the world.¹²⁵

Databases

Databases fall within the description of 'written table or compilation' and are therefore protected as literary works under s 48(1) of the 1956 Act. As of now, it is still not clear how much impact the US decision of *Feist*¹²⁶ will have on the UK law. Unless the UK courts follow *Feist*, protection of databases in Hong

¹²³ Consultative document, para 15.28.

¹²⁴ *Ibid*, para 15.2.

¹²⁵ Appendix 1, Table 8.

¹²⁶ Note 15 above.

Kong is still governed by the 'sweat of the brow' or, equivalently, the 'skill and labour' principle. However, one should note that the proposed EC Database Directive stipulates that, to qualify for copyright protection, a database must be original in the sense that the selection or arrangement of material in the database constitutes 'the author's own intellectual creation.'¹²⁷ The Explanatory Memorandum to the proposed Directive has made it clear that this standard of originality is higher than that required by the UK 'skill and labour' doctrine.¹²⁸ If adopted, the Directive will have significant impact on UK copyright law, at least as far as electronic databases are concerned.

As the law stands, apart from general propositions in connection with literary works, there is little one can say about the more specific aspects of database protection. It is unclear, for instance, how copyright protection of databases will affect the extraction of their contents, how the fair dealing principle will allow makers of private databases to compile copyright works, or how the terms of protection for databases which are constantly updated will be determined.

The consultative document contains a discussion on databases but fails to make any concrete suggestions other than a general recommendation of following the approach of the UK 1988 Act.¹²⁹ Because the document was published before the proposed EC Database Directive, the latter has not been considered by the Copyright Sub-committee. This is regrettable, as electronic databases in all forms — most notably in the form of CD-ROMs — have become increasingly common, and will be more so in the next decade. While it may not be necessary to create a special regime for databases, the issues mentioned above are essential questions to which the Hong Kong legislature must provide answers, if Hong Kong is to play a part in the world database market.

Moral rights

Moral rights in computer software have not attracted much discussion in the international scene. In fact, very few countries have legislation protecting moral rights in computer programs. There are probably two main reasons.

First, although not impossible, it is more difficult to see a computer program as an embodiment of its 'author's personality,' as compared with other literary works or artistic works. Second, except for the least sophisticated computer programs, the development of a software work usually involves a team of programmers, system analysts, and management personnel as joint authors with the copyright vested in the software house as their employer. If extensive moral rights are granted to such a large group of authors it may become

¹²⁷ Art 2.3.

¹²⁸ Art 1, para 3.2.4.

¹²⁹ Paras 5.49–5.59.

impracticable for the software house to exercise its economic rights in certain circumstances, such as customising its software to suit its clients. (Since customisation involves making adaptations which may impinge upon the author's right of integrity, the consent of every author is required.)

In Hong Kong, the only moral right in respect of literary works protected under the 1956 Act is the right against false attribution of authorship.¹³⁰ Any infringement of the right is actionable by the author, or his personal representatives, as a breach of statutory duty.¹³¹ The right subsists until twenty years after the author's death.¹³²

Limited as it is, Hong Kong's protection of moral rights in computer software already surpasses that under the model laws.

Conclusions

A summary of Hong Kong's copyright protection for computer software is shown in Tables 1–9 in Appendix 1 along with the model laws. A list of recommended changes to software protection by the Copyright Sub-committee is given in Appendix 2. In the main, software protection in Hong Kong meets the standards of the model laws, but it cannot be said that the law has kept abreast with new developments of the technology. This is not surprising as software protection in Hong Kong is achieved merely by extending the UK Copyright Act 1956 to include computer programs as literary works. From the beginning this was intended to be a temporary measure pending a comprehensive review of the 1956 Act.

Among the shortcomings of the present software protection system, the following are more prominent:

(1) Upon the first sale of a copy of a program, the copyright owner loses the right to control further rental of the copy.

(2) Loading of a program by the lawful user into a computer necessary for using the program is not expressly excluded from copyright infringement.

(3) Making of a back-up copy by the lawful user for archival purposes is not an express exception to copyright infringement.

(4) Reproduction and adaptation performed by the lawful user necessary for using a program is not expressly permitted.

(5) There are no provisions allowing decompilation for the purpose of achieving interoperability.

(6) There are no specific provisions on the protection of databases.

The greatest strength of the software protection system in Hong Kong lies in its efficient enforcement of copyright. Although the law in this respect is

¹³⁰ s 43(1), (2).

¹³¹ s 43(8).

¹³² s 43(5).

now challenged by its Bill of Rights, Hong Kong cannot afford to de-emphasise copyright enforcement as its economy depends so much on its trading reputation, which in turn is closely linked with its protection of intellectual property rights.

Many concerns have been expressed about the protection of foreign software in the future Hong Kong Special Administrative Region (HKSAR). At present, such protection is effected by various Orders in Council but these Orders should cease to have legal force when Hong Kong is no longer a British colony. In principle, since the HKSAR will be part of the People's Republic of China (PRC), foreign software should continue to enjoy copyright protection in the HKSAR as it is so protected under the PRC law.¹³³ But in order to dispel any doubts that might arise in this regard, there is much to be said for the PRC to provide expressly for the continuity of copyright protection already enjoyed by foreign software in Hong Kong when British rule ends.

¹³³ By virtue of the Regulations on the Protection of Computer Software adopted by the State Council in May 1991 pursuant to Art 53 of the PRC Copyright Law, with effect from 1 October 1991.

Appendix 1

**Copyright Protection for Computer Software:
Hong Kong Law Compared with the Model Laws**

(In the following tables, '—' denotes absence of provision)

Table 1 — Copyrightability of Computer Software

	WIPO Model Provisions	US Copyright Act 1976	EC Software Directive	Hong Kong 1956 Act & 1985 Act
Object Codes	Protected: ss 1(i), (iv), 3	Protected: <i>Apple v Franklin</i> ¹³⁴	Position not clear from Art 1.1	Position not clear from 1985 Act, s 1(1)
Preparatory Material (including flowcharts and other design documents)	Protected as part of "computer software": ss 1(ii), (iv), 3	Protected in its own right: s 102(a)	Protected as part of "computer program": Art 1.1	Protected in its own right: 1956 Act, ss 2(1), (2)
Concepts	Not protected: s 4	Not protected: s 102(b)	Not protected: Art 1.2	Not protected: <i>Ladbroke</i> ¹³⁵
Screen Displays	—	Protected: s 102(a)(6)	—	—

¹³⁴ Note 12 above.

¹³⁵ Note 16 above.

Table 2 — Criteria for Protection

	WIPO Model Provisions	US Copyright Act 1976	EC Software Directive	Hong Kong 1956 Act & 1985 Act
Originality	Required; must be 'author's own intellectual effort': s 3	Required: s.102(a); not just 'sweat of the brow': <i>Feist</i> ¹³⁶	Required; must be 'author's own intellectual creation': Art 1.3	Required: 1956 Act, ss 2(1), (2); must have sufficient 'skill and labour': <i>Ladbroke</i> ¹³⁷ ; and note <i>Interlego</i> ¹³⁸
Fixation	—	Required: s 102(a)	—	Required: 1956 Act, ss 2(1), (2) as supplemented by 1985 Act, s 2
Qualification	—	<i>Unpublished works</i> — not required: s 104(a) <i>Published works</i> — by author's nationality/residence or country of first publication: s 104(b)	—	<i>Unpublished works</i> — by author's nationality/residence: 1956 Act, s 2(1); <i>Published works</i> — by author's nationality/residence or country of first publication: 1956 Act, s 2(2)

¹³⁶ Note 15 above.¹³⁷ Note 16 above.¹³⁸ Note 62 above.

Table 3 — Term of Protection

	WIPO Model Provisions	US Copyright Act 1976	EC Software Directive	Hong Kong 1956 Act & 1985 Act
General Term	Not more than 25 years from creation: s 7(b)	Author's life plus 50 years: s 302(a)	Author's life plus 50 years: Art 8.1	Author's life plus 50 years: 1956 Act, s 2(3)

Table 4 — Copyright Ownership

	WIPO Model Provisions	US Copyright Act 1976	EC Software Directive	Hong Kong 1956 Act & 1985 Act
Initial	Author: s 2(1)	Author: s 201(a)	Author or legal person designated by national legislation: Art 2.1	Author: 1956 Act, s 4(1)
Software Developed Within Employment	Employer, subject to contract: s 2(1)	Employer, subject to contract: s 201(b)	Employer, subject to contract: Art 2.3	Employer, subject to contract: 1956 Act, s 4(1)
Commissioned Software	—	Commissioning party, subject to contract: s 201(b)	—	—
Computer- Generated Software	—	—	—	—

Table 5 — Restricted Acts

	WIPO Model Provisions	US Copyright Act 1976	EC Software Directive	Hong Kong 1956 Act & 1985 Act
Reproduction	Restricted: s 5(iii)	Restricted: s 106(1); and note <i>Computer Associates</i> ¹³⁹	Restricted: Art 4(a)	Restricted: 1956 Act, s 2(5)(a) as supplemented by 1985 Act, s 2; and note <i>Richardson</i> ¹⁴⁰
Adaptation	Restricted: s 5(iv)	Restricted: s.106(2)	Restricted: Art 4(b)	Restricted: 1956 Act, s 2(5)(f) as supplemented by 1985 Act, s 1(2)
Use	Restricted: s 5(vi)	—	—	—
Distribution	Restricted: s 5(vii)	Restricted: s 106(3)	Restricted: Art 4(c)	Restricted: 1956 Act, s 2(5)(b)
Further Rental	Position not clear from s 5(vii)	Restricted: s 109(b)	Restricted: Art 4(c)	—

¹³⁹ Note 18 above.¹⁴⁰ Note 91 above.

Table 6 — Secondary Infringements

	WIPO Model Provisions	US Copyright Act 1976	EC Software Directive	Hong Kong 1956 Act & 1985 Act
Possession of Infringing Copies for Commercial Purposes	Infringe, no knowledge required: s 5(vii)	—	Infringe, actual or constructive knowledge required: Art 7.1(b)	Not infringe under 1956 Act; but in criminal proceedings, the accused is presumed guilty unless he proves that he did not have actual or constructive knowledge: Copyright Ordinance, s 5
Importing Infringing Copies	Infringe, no knowledge required: s 5(vii)	Infringe, no knowledge required: s 602	Infringe, actual or constructive knowledge required: Art 7.1(a)	Infringe, actual knowledge required: 1956 Act, s 5(2)
Dealing with Infringing Copies	Infringe, no knowledge required: s 5(vii)	Infringe, no knowledge required: s 106(3)	Infringe, actual or constructive knowledge required: Art 7.1(a)	Infringe, actual knowledge required: 1956 Act, ss 5(3), (4)
Circumvention of Protection	—	—	Infringe, no knowledge required: Art 7.1(c)	—

Table 7 — Exceptions to Copyright Infringement

	WIPO Model Provisions	US Copyright Act 1976	EC Software Directive	Hong Kong 1956 Act & 1985 Act
Making of Back-up Copies	—	Permitted if essential for use or for archival: s 117; or if 'fair use': s 107	Permitted if necessary for use: Art 5.2	Permitted if for research, private study, criticism or review: 1956 Act, s 6
Loading into Computer	—	Permitted if essential for use or for archival: s 117; or if 'fair use': s 107	Permitted if necessary for use: Art 5.1	Permitted if for research, private study, criticism or review: 1956 Act, s 6
Other Forms of Reproduction	—	Permitted if essential for use or for archival: s 117; or if 'fair use': s 107	Permitted if necessary for use: Art 5.1	Permitted if for research, private study, criticism or review: 1956 Act, s 6
Adaptation	—	Permitted if essential for use or for archival: s 117; or if 'fair use': s 107	Permitted if necessary for use: Art 5.1	Permitted if for research, private study, criticism or review: 1956 Act, s 6
Decompilation	—	Permitted if 'fair use': s 107; and note <i>Sega</i> ¹⁴¹	Permitted if necessary for achieving interoperability: Art 6	Permitted if for research, private study, criticism or review: 1956 Act, s 6

¹⁴¹ Note 21 above.

Table 8 — Remedies

	WIPO Model Provisions	US Copyright Act 1976	EC Software Directive	Hong Kong 1956 Act & 1985 Act
Presumptions	—	Available but only for rejecting 'innocent infringement': s 401(d)	—	Available: 1956 Act, s 20; Copyright Ordinance, s 9
Injunction	Available: s 8(1)	Available: s 502	—	Available: 1956 Act, s 17
Damages	Available: s 8(2)	Available: s 504	—	Available: 1956 Act, ss 17, 18
Penalty	—	Available: s 506	—	Available: 1956 Act, s 21; Copyright Ordinance, s 5
Seizure	—	Available: s 509	Available: Art 7.2	Available: 1956 Act, ss 17, 21; Copyright Ordinance, ss 5, 6

Table 9 — Databases and Moral Rights

	WIPO Model Provisions	US Copyright Act 1976	EC Software Directive	Hong Kong 1956 Act & 1985 Act
Databases	—	Protected as 'compilations and derivative works': s 103; 'sweat of the brow' doctrine rejected: <i>Feist</i> ¹⁴²	Will be protected under the Database Directive if adopted — 'sweat of the brow' will not suffice for originality	Protected as 'written table or compilation' within literary works: 1956 Act, s 48(1); 'skill and labour' suffice for originality
Moral Rights	—	—	—	Right against false attribution of authorship: 1956 Act, s 43

¹⁴² Note 15 above.

Appendix 2

A Summary of Recommended Changes to Hong Kong's Software Protection as Suggested by the Copyright Sub-Committee¹⁴³

- 1 A provision similar to s 39 of the Singapore Copyright Act 1987 be introduced to permit copying or adaptation as an essential step in the utilisation of the computer program with a machine.
- 2 The hiring of a computer program be made a restricted act but limited only to circumstances where the program passes from the possession of the hirer.
- 3 In relation to electronic databases, the approach in the UK 1988 Act be followed.
- 4 Use within a business environment of a computer program which is an infringing act not be made a criminal offence if such use is merely incidental to the business.
- 5 A presumption provision similar to s 105(3) of the UK 1988 Act be introduced to assist in proof of ownership.
- 6 A provision similar to s 296 of the UK 1988 Act be introduced to give civil remedies against devices designed to circumvent copy protection.

¹⁴³ Consultative document, para 17.7–17.16.